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Drake et al.

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(54) **GOOSENECK COUPLER**

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B60D 1/46 (2006.01)

(52) **U.S. Cl.** **280/490.1**; 280/441.2

(58) **Field of Classification Search** 280/490.1, 280/425.2, 441.2

See application file for complete search history.

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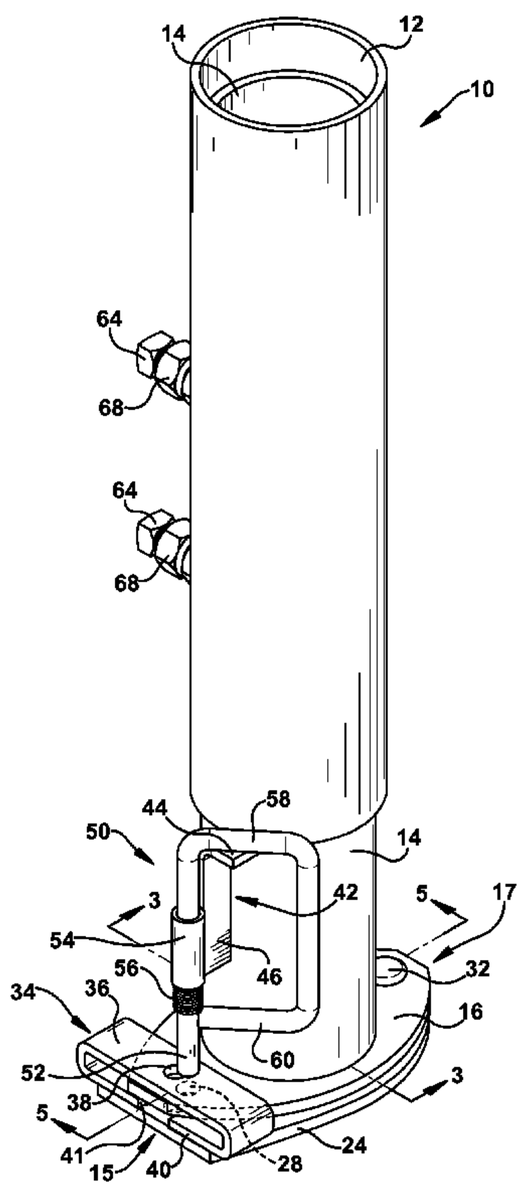
(57) **ABSTRACT**

A gooseneck coupler for engaging a towed vehicle to a towing vehicle is described. The coupler includes an outer tube having apertures that is moveable relative to an inner tube secured to a base plate. A locking plate is pivotally secured to the base plate, wherein the locking plate and base plate both include alignable locking pin apertures. A locking assembly includes a handle and a locking pin that is insertable into the locking pin apertures. A support bracket is secured to the inner tube. The support bracket includes a stop portion and a spacer portion that aligns the locking pin into the locking pin apertures. The coupler also includes set screws locatable through the apertures, wherein the set screws are tightened onto the inner tube to prevent movement of the outer tube. The set screws function as a visual indicator that the outer tube has been over extended.

32 Claims, 5 Drawing Sheets



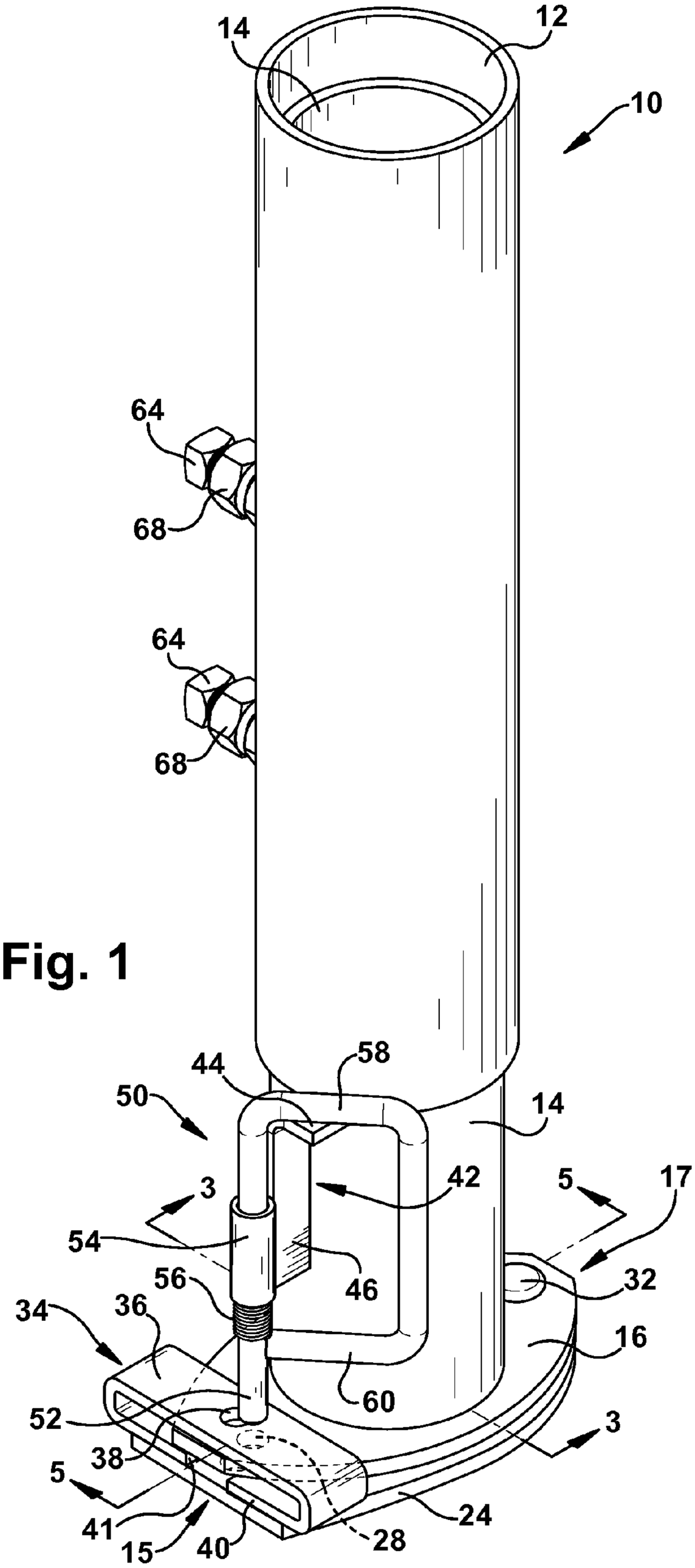

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Fig. 1

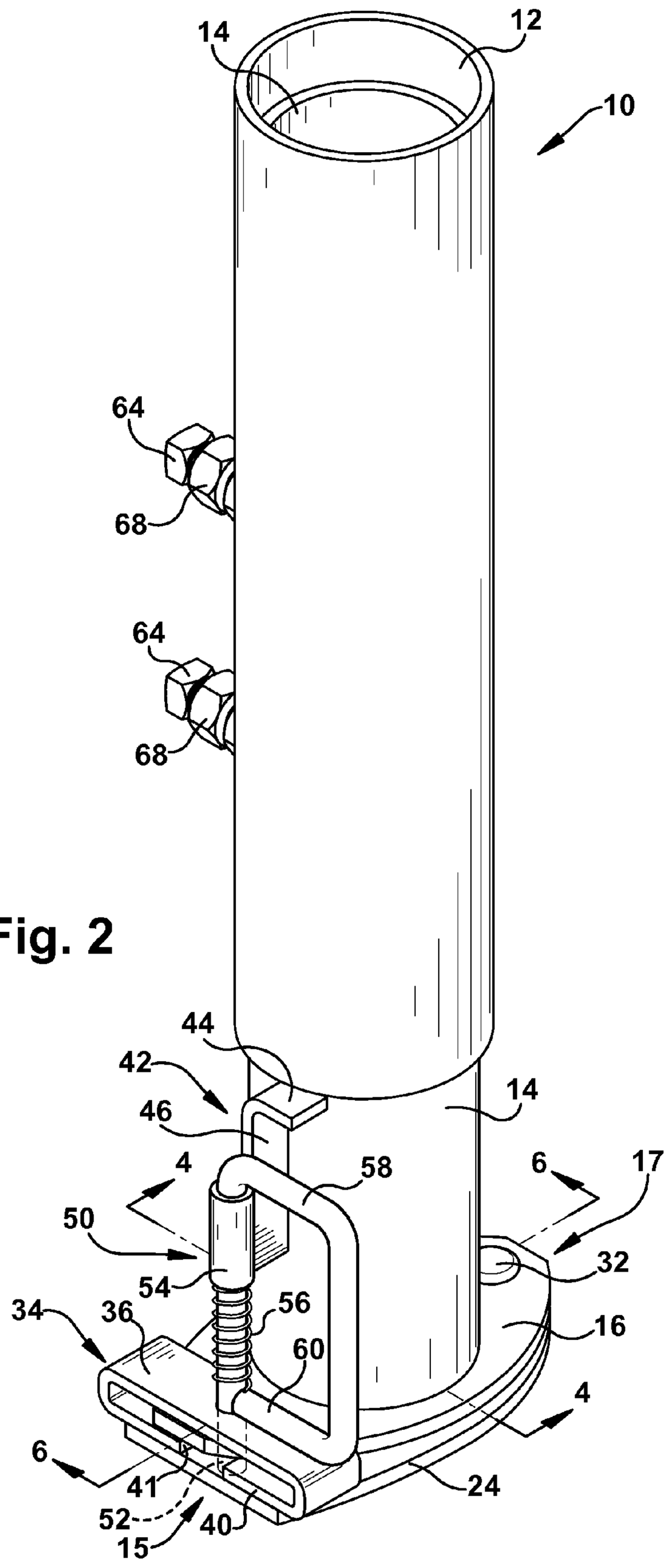
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Fig. 2

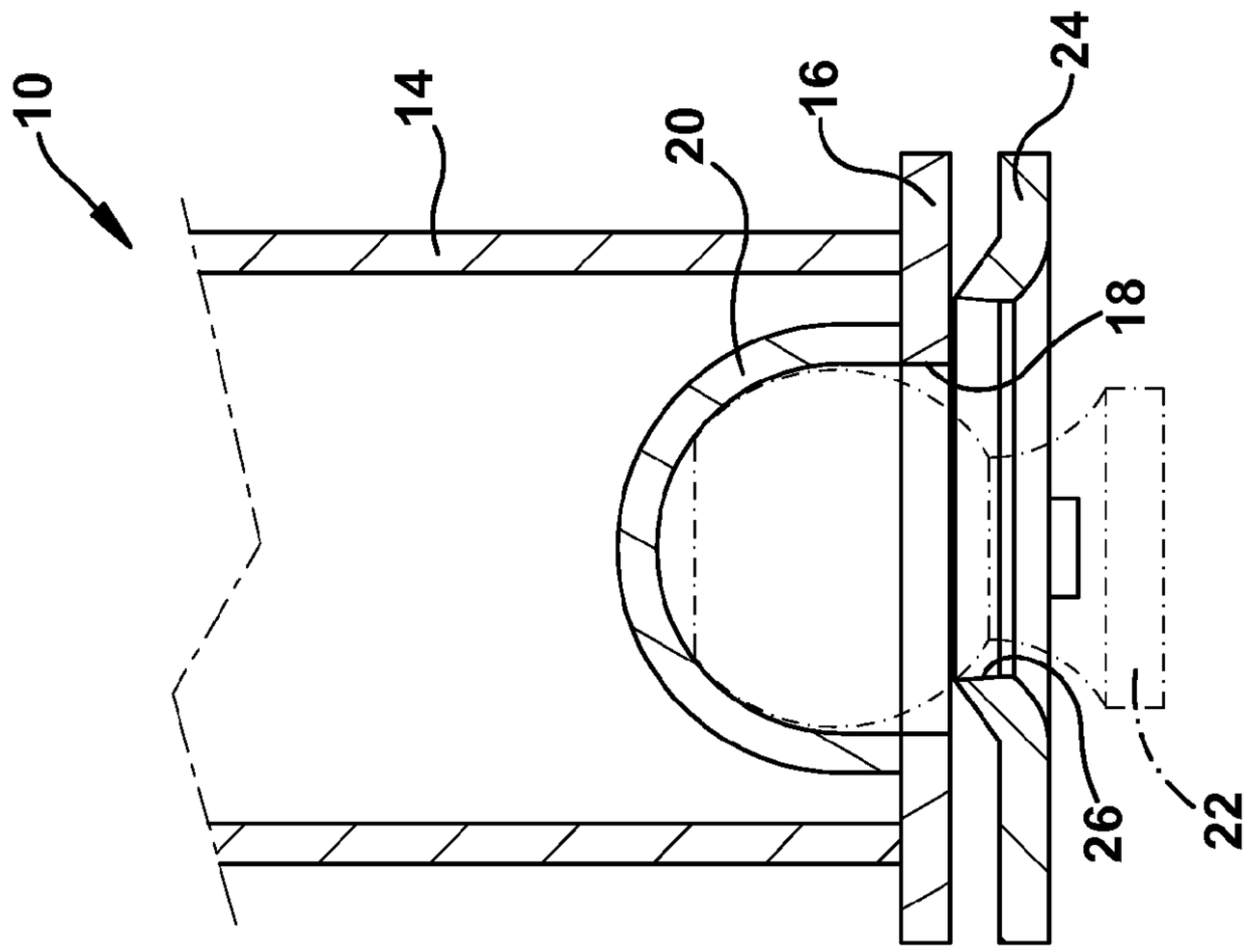

Fig. 4

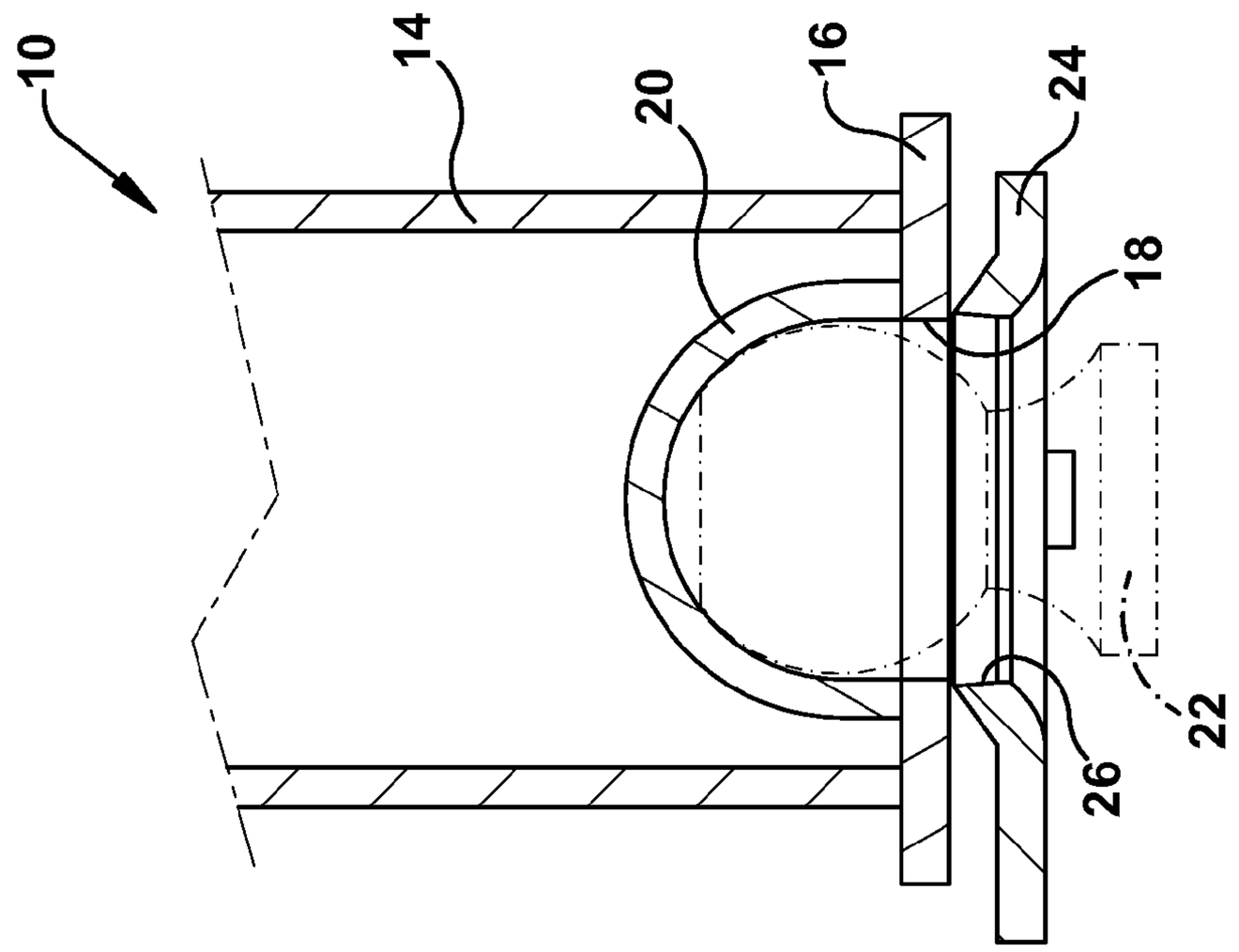

Fig. 3

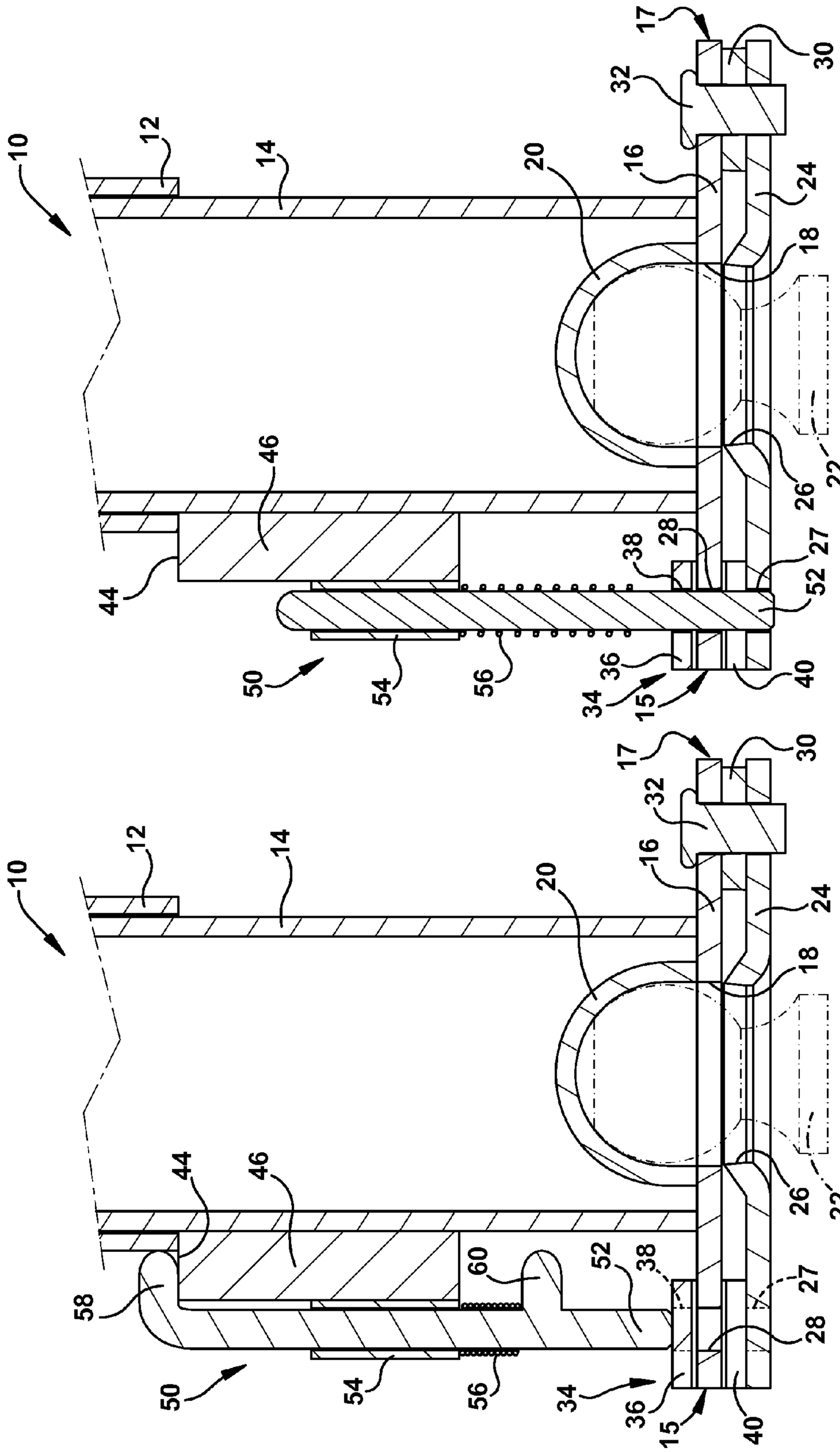
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Fig. 6

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Fig. 5

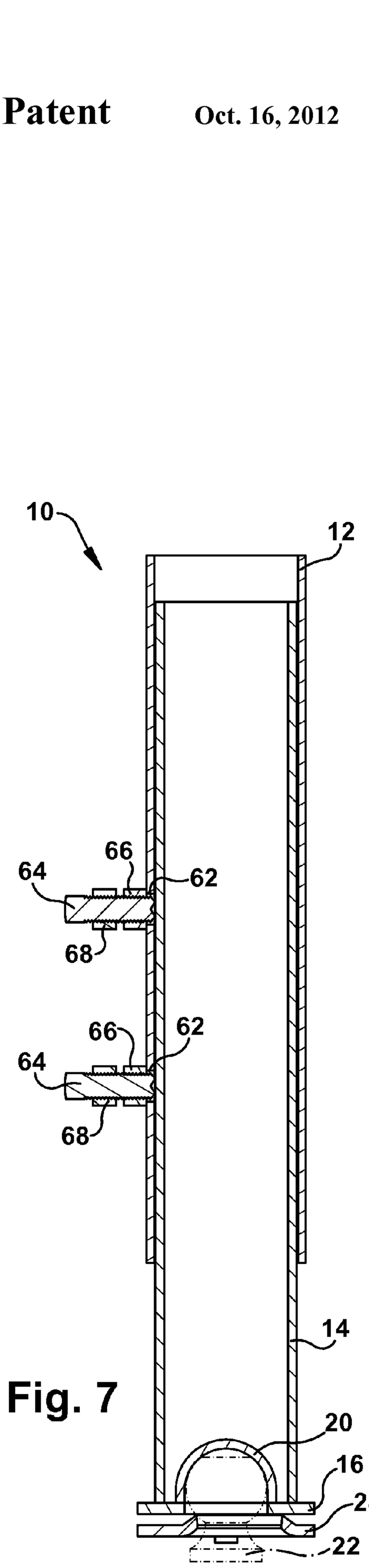
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Fig. 7

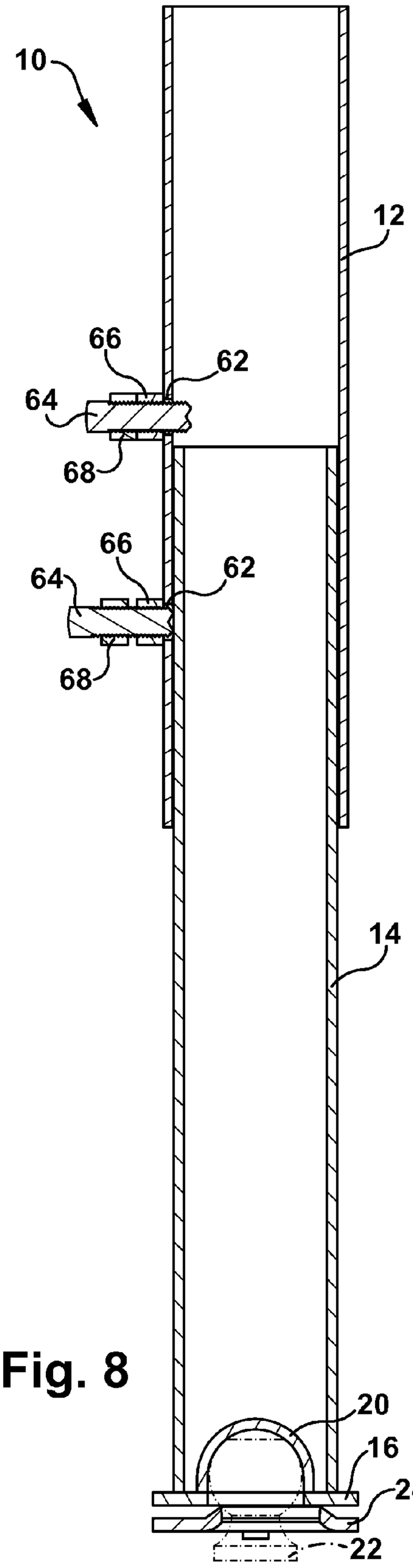
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Fig. 8

GOOSENECK COUPLER

FIELD OF THE INVENTION

The present invention is generally related to a coupler for securing a trailer to a towing vehicle and, more particularly, to a gooseneck coupler.

BACKGROUND

Many vehicles are designed to transport freight, goods, merchandise, personal property, and other such cargo. Often, such vehicles may be arranged to tow a trailer by attaching the trailer to the towing vehicle, such as through the use of a hitch assembly. The towing industry has developed a number of methods and apparatuses for securing or engaging the towed vehicle or trailer to the towing vehicle, such as a truck.

There are many different types of trailer hitches in the art that may be attached to the towing vehicle in a variety of ways, depending on the type of hitch. Some of the most common types of hitches include gooseneck, fifth wheel, front mount, and the like. Typically, trailers may be connected to the towing vehicle by way of a hitch assembly including a ball hitch or member secured to the towing vehicle and a ball socket coupling mechanism on the towed vehicle or trailer that mounts over the ball and thereby allows for the trailer to pivot behind the towing vehicle.

Numerous types of hitch balls have been developed to be attached to the bumper or other rear portion of a towing vehicle. The trailer or towed vehicle may be equipped with a coupler mechanism to be attached to the towing vehicle by placing the coupler mechanism over the hitch ball and securing the coupler to the hitch ball. Similar apparatus using hitch receivers attached to the rear of the towing vehicle and drawbars may be used to secure trailers to towing vehicles.

Some trailers may be designed to carry heavy loads. Connecting such a trailer to a ball hitch on a bumper of a towing vehicle, however, may be impractical. When a trailer load is heavy as compared to the weight of the towing vehicle, applying the trailer load over the rear axle of the towing vehicle may create a more desirable towing condition. In addition, such an arrangement may put much of the force of the trailer load onto structural members of the towing vehicle, such as the frame, whereby the hitch ball may be located in the truck bed.

There are generally two arrangements for securing a trailer to the bed of a towing vehicle—a fifth wheel hitch and a gooseneck hitch. A fifth wheel hitch may be utilized with towed vehicles having a king pin, which may be part of a pin box attached to the towed vehicle. Fifth wheel hitches may generally be attached in a bed of a truck or directly to the frame of the truck in a more permanent manner, whereby tools may generally be required to remove fasteners and other connectors to install or uninstall a fifth wheel hitch to the bed of a towing vehicle. A gooseneck hitch may be utilized with a towed vehicle having a gooseneck coupler that may generally be coupled to a hitch ball that may be located in the bed of the towing vehicle. The hitch ball may typically be permanently secured to the frame or bed of the towing vehicle.

The trailer coupler often has a socket portion that is sized and shaped to receive the hitch ball. The gooseneck coupler may engage the hitch ball to pivotally couple the trailer to the towing vehicle. The gooseneck coupler to hitch ball connection may allow for relative movement between the towing vehicle and the towed vehicle as the towing vehicle makes turns, traverses uneven or rough terrain, and passes along inclining and declining roadways. The hitch ball member may be removed or lowered to a stowed position below the bed to ensure that the use of the bed is not substantially hindered by the presence of the ball.

The gooseneck coupler typically may include a manually operated clamping arrangement which may retain the ball member in the socket and, thus, the towed vehicle to the towing vehicle.

SUMMARY

A gooseneck coupler for engaging a towed vehicle to a towing vehicle is described. The gooseneck coupler may include an outer tube telescopically moveable relative to an inner tube, wherein the inner tube may be secured to a base plate. The gooseneck coupler may also include a locking plate, a locking assembly and a support bracket. The locking plate may be pivotally secured to the base plate, wherein the locking plate and the base plate may both include alignable locking pin apertures. The locking assembly may include a handle and a locking pin, wherein the locking assembly may be located adjacent the inner tube and the locking pin may be insertable into the locking pin apertures. The support bracket may be secured to the inner tube, wherein the support bracket may include a stop portion and a spacer portion. The spacer portion may align the locking pin into the locking pin apertures. The outer tube may rest upon the stop portion when in a retracted position. The handle may also rest upon the stop portion when in an unlocked position.

The outer tube of the gooseneck coupler may also include at least two apertures. The gooseneck coupler may include at least two set screws. The set screws may be locatable through the at least two apertures of the outer tube. The at least two set screws may be tightened onto the inner tube to prevent movement of the outer tube relative to the inner tube. The set screws may also function as a visual indicator when the outer tube may be over extended. The set screws may not tightly evenly against the inner tube when the outer tube is extended beyond a height of the inner tube.

BRIEF DESCRIPTION OF THE DRAWINGS

Objects and advantages together with the operation of the invention may be better understood by reference to the following detailed description taken in connection with the following illustrations, wherein:

FIG. **1** illustrates a perspective view of an embodiment of a gooseneck coupler in a non-limiting example according to the present teachings in an unlocked position.

FIG. **2** illustrates a perspective view of the gooseneck coupler of FIG. **1** in a locked position.

FIG. **3** illustrates a partial cross-sectional side view taken along line **3-3** of FIG. **1**.

FIG. **4** illustrates a partial cross-sectional side view taken along line **4-4** of FIG. **2**.

FIG. **5** illustrates a partial cross-sectional front view taken along line **5-5** of FIG. **1**.

FIG. **6** illustrates a partial cross-sectional front view taken along line **6-6** of FIG. **2**.

FIG. **7** illustrates a side cross-sectional view of the gooseneck coupler of FIG. **1** in an extended position.

FIG. **8** illustrates a side cross-sectional view of the gooseneck coupler of FIG. **1** in an over extended position.

DETAILED DESCRIPTION

Reference will now be made in detail to exemplary embodiments of the present invention, examples of which are illustrated in the accompanying drawings. It is to be under-

stood that other embodiments may be utilized and structural and functional changes may be made without departing from the respective scope of the invention. As such, the following description is presented by way of illustration only and should not limit in any way the various alternatives and modifications that may be made to the illustrated embodiments and still be within the spirit and scope of the invention.

A gooseneck coupler **10** is illustrated in FIGS. **1-8**. The gooseneck coupler **10** may be configured to engage a towing vehicle (not shown), such as a truck, and a towed vehicle, such as a trailer (not shown). The gooseneck coupler **10** may be of any appropriate shape, size, type or configuration. The gooseneck coupler **10** may include an outer tube **12**, an inner tube **14**, a locking plate **24** and a support bracket **42**.

The outer tube **12** may be of any appropriate shape, size, type or configuration, such as of a generally cylindrical or rectangular tubular configuration (FIGS. **1** and **2**). The outer tube **12** may be located at any appropriate position on the gooseneck coupler **10**, such as outside of and surrounding the inner tube **14**. For example, the outer tube **12** may be of a slightly interior dimension than an exterior dimension of the inner tube **14**.

The inner tube **14** may be of any appropriate shape, size, type or configuration, such as of a generally cylindrical or rectangular tubular configuration (FIGS. **1** and **2**). For example, the inner tube **14** may be of a correspondingly similar shape as that of the outer tube **12**. The inner tube **14** may be located at any appropriate position on the gooseneck coupler **10**, such as located within a portion of the outer tube **12**. For example, the inner tube **14** may be of a slightly smaller exterior dimension than an interior dimension of the outer tube **12**.

The gooseneck coupler **10** may also include a base plate **16**. The base plate **16** may be of any appropriate shape, size, type or configuration, such as of a generally ovular configuration (FIGS. **1** and **2**). The base plate **16** may be located at any appropriate position on the gooseneck coupler **10**, such as adjacent an end of the inner tube **14**, such as a lower end. The inner tube **14** may be secured to the base plate **16** by any appropriate means, such as by welding or the like.

The base plate **16** may include an opening **18** and a locking pin aperture **28** (FIGS. **5** and **6**). The opening **18** may be of any appropriate shape, size, type or configuration, such as a generally circular shape (FIGS. **3-6**). The opening **18** may be located at any appropriate position on the base plate **16**, such as at an approximate central location on the base plate **16**. The opening **18** may provide access to a socket **20** (FIGS. **3-6**).

The socket **20** may be of any appropriate shape, size, type or configuration, such as of a generally semi-spherical shape (FIGS. **3-8**). For example, the socket **20** may be of a shape and size to receive a hitch ball **22** therein (FIGS. **3-8**). The socket **20** may be located at any appropriate position on the gooseneck coupler **10**, such as adjacent the opening **18** of the base plate **16** and the lower end of the inner tube **14** (FIGS. **3-6**). The socket **20** may be secured to the base plate **16** by any appropriate means, such as by welding or the like. While the base plate **16** and socket **20** may be shown as separate components, it is to be understood that the base plate **16** and socket **20** may be fabricated as a single integral piece and should not be limited to that show or described herein.

The locking pin aperture **28** of the base plate **16** may be of any appropriate shape, size, type or configuration, such as of a generally circular shape (FIGS. **1**, **5** and **6**). The locking pin aperture **28** may be located at any appropriate position on the base plate **16**, such as adjacent a first side **15** of the base plate **16**.

The locking plate **24** may be of any appropriate shape, size, type or configuration, such as of a generally ovular or rectangular configuration (FIGS. **1** and **2**). For example, the locking plate **24** may be of a similar shape and size as that of the base plate **16**. The locking plate **24** may be located at any appropriate position on the gooseneck coupler **10**, such as adjacent base plate **16**. For example, the locking plate **24** may be located below the base plate **16** (FIGS. **1-8**).

The locking plate **24** may include a hitch ball opening **26** and a locking pin aperture **27** (FIGS. **5** and **6**). The hitch ball opening **26** may be of any appropriate shape, size, type or configuration, such as of a generally circular shape. For example, the hitch ball opening **26** may be of a similar shape and size as that of the opening **18** in the base plate **16**. The hitch ball opening **26** may be located at any appropriate position on the locking plate **24**, such as at an approximate central location on the locking plate **24**, whereby the hitch ball opening **26** may generally align with the opening **18** in the base plate **16** (FIGS. **3-6**).

The locking pin aperture **27** of the locking plate **24** may be of any appropriate shape, size, type or configuration, such as of a generally circular shape. The locking pin aperture **27** may be located at any appropriate position on the locking plate **24**, such as adjacent the first side **15** of the base plate **16** and alignable with the locking pin aperture **28** of the base plate **16** (FIGS. **5** and **6**).

This alignment of the opening **18** in the base plate **16** and the hitch ball opening **26** of the locking plate **24** may provide an entrance for the hitch ball **22** to enter into the socket **20** of the inner tube **14** (FIGS. **3-6**). The hitch ball **22** of the towing vehicle may generally be located within and abut the socket **20** during engagement of the gooseneck coupler **10** and a towed vehicle.

The gooseneck coupler **10** may also include a base spacer **30** and a fastener **32** (FIGS. **5** and **6**). The base spacer **30** may be of any appropriate shape, size, type or configuration, such as of a generally rectangular bracket. The base spacer **30** may be located at any appropriate position on the gooseneck coupler **10**, such as located between the base plate **16** and the locking plate **24**. The base plate **16**, locking plate **24** and base spacer **30** may all include an aperture (not shown), whereby they may be secured to one another by the fastener **32** (FIGS. **5** and **6**). The fastener **32** may be of any appropriate shape, size, type or configuration that may provide for a pivotal relationship between the base plate **16** and the locking plate **24**.

The gooseneck coupler **10** may include a base bracket **34** (FIGS. **1**, **2**, **5** and **6**). The base bracket **34** may be of any appropriate shape, size, type or configuration, such as of a generally sideways C-shaped configuration (FIGS. **1** and **2**). For example, the base bracket **34** may include an upper portion **36** and a lower portion **40**, whereby the lower portion **40** includes an opening **41** (FIGS. **1** and **2**). The base bracket **34** may also include an aperture **38** (FIGS. **1**, **5** and **6**). The aperture **38** may be of any appropriate shape, size, type or configuration, such as of a generally circular shape. The aperture **38** may be located at any appropriate position on the base bracket **34**, such as at an approximate central location on the upper portion **36**.

The base bracket **34** may be located at any appropriate position on the gooseneck coupler **10**, such as generally surrounding the first side **15** of the base plate **16** (FIGS. **1**, **2**, **5** and **6**). For example, the lower portion **40** of the base bracket **34** may be located between the base plate **16** and the locking plate **24**, whereby the opening **41** in the lower portion **40** may provide access to the locking pin aperture **27** of the locking plate **24** (FIGS. **2**, **5** and **6**).

The support bracket **42** may be of any appropriate shape, size, type or configuration, such as of a generally L-shaped configuration (FIGS. **1** and **2**). The support bracket **42** may be located at any appropriate position on the gooseneck coupler **10**, such as adjacent the lower end of the inner tube **14**. The support bracket **42** may be secured to the inner tube **14** by any appropriate means, such as by welding or the like. The support bracket **42** may include a stop portion **44** and a spacer portion **46** (FIGS. **1**, **2**, **5** and **6**).

The stop portion **44** may be of any appropriate shape, size, type or configuration, such as of a generally rectangular shape (FIGS. **1** and **2**). The stop portion **44** may be located at any appropriate position on the support bracket **42**, such as generally parallel to the base plate **16** and generally extending perpendicularly outward from the inner tube **14** (FIGS. **1** and **2**).

The spacer portion **46** may be of any appropriate shape, size, type or configuration, such as of a generally rectangular shape (FIGS. **1**, **2**, **5** and **6**). The spacer portion **46** may be located at any appropriate position on the support bracket **42**, such as generally perpendicular to the stop portion **44** and the base plate **16**. The spacer portion **46** may also extend generally perpendicularly outward from the inner tube **14**, whereby the stop portion **44** and the spacer portion **46** form the general L-shape of the support bracket **42** (FIGS. **1** and **2**).

The stop portion **44** and spacer portion **46** of the support bracket **42** may be of any appropriate shape or size. For example, the stop portion **44** and spacer portion **46** may be of a specified width (FIGS. **1**, **2**, **5** and **6**). This width may provide a specified amount of spacing from the inner tube **14** to the locking pin **52** to thereby align the locking pin **52** into the proper position for the locking pin **52** to lock the base plate **16** and locking plate **24** to one another (FIGS. **2**, **5** and **6**).

In addition, the stop portion **44** and spacer portion **46** may be of specified lengths (FIGS. **1** and **2**). The stop portion **44** of the support bracket **42** may be of a first length that may serve as a stop for the outer tube **12** when the outer tube **12** is fully retracted over inner tube **14** (FIGS. **2**, **5** and **6**). The spacer portion **46** of the support bracket **42** may be of a second length.

The gooseneck coupler **10** may also include a locking assembly **50** (FIGS. **1**, **2**, **5** and **6**). The locking assembly **50** may be of any appropriate shape, size, type or configuration. The locking assembly **50** may be located at any appropriate position on the gooseneck coupler **10**, such as located adjacent the lower end of the inner tube **14** (FIGS. **1**, **2**, **5** and **6**). The locking assembly **50** may include locking pin **52**, a pin housing **54** and a spring **56** (FIGS. **1**, **2**, **5** and **6**).

The locking pin **52** may be of any appropriate shape, size, type or configuration, such as of a generally cylindrical shape (FIGS. **1**, **2**, **5** and **6**). The locking pin **52** may be located at any appropriate position on the locking assembly **50**. The pin housing **54** may be of any appropriate shape, size, type or configuration, such as of a generally cylindrical configuration (FIGS. **1**, **2**, **5** and **6**). The pin housing **54** may be located at any appropriate position on the gooseneck coupler **10**, such as adjacent the spacer portion **46** of the support bracket **42** (FIGS. **1**, **2**, **5** and **6**). The pin housing **54** may be secured to the support bracket **42** by any appropriate means, such as by welding or the like. The spring **56** may be of any appropriate shape, size, type or configuration. The spring **56** may be located at any appropriate position on the locking assembly **50**, such as adjacent and below the pin housing **54**.

The locking assembly **50** may also include an upper handle **58** and a lower handle **60** (FIGS. **1**, **2** and **5**). The upper handle **58** and lower handle **60** may generally be parallel to one another and extend generally perpendicularly away from the locking pin **52** portion. The support bracket **42** may function as a hold-open positioning device for the upper handle **58** (FIGS. **1** and **5**). The stop portion **44** may allow the upper handle **58** of the locking assembly **50** to rest upon the stop portion **44**, whereby the stop portion **44** may be used as a hold-open position for the locking pin **52** against a bias of spring **56**. The hold-open function may allow a user to release locking assembly **50** while maintaining locking pin **52** in an unlocked position.

The overall shape of the support bracket **42** may allow it to function as a stop, a hold-open device and as a spacer. The shape of the support bracket **42** and the location at which the support bracket **42** is placed on the inner tube **14** may allow the support bracket **42** to achieve this multi-purpose function. The support bracket **42** may function as a stop when the outer tube **12** is in a lowered or retracted position that may prevent compression or collapse of the gooseneck coupler **10** (FIGS. **2**, **5** and **6**). The support bracket may also function to limit the distance outer tube **12** may collapse onto inner tube **14** in the event of a dynamic (unintended) collapse. The support bracket **42** may also function as a spacer to locate the position of the locking pin **52** or locking pin guide **54** (FIGS. **2** and **6**). The support bracket **42** may simplify the locking assembly **50** for the gooseneck coupler **10**, thereby reducing material required, and providing several functions as described above.

The outer tube **12** may include at least one aperture **62** (FIGS. **7** and **8**). For example, the outer tube **12** may include any appropriate number of apertures **62**, such as two, three, four, etc. In a non-limiting example, the outer tube **12** may include a pair of apertures **62**. The apertures **62** may be of any appropriate shape, size, type or configuration, such as of a generally circular shape. The apertures **62** may be located at any appropriate position on the outer tube **12**, such as vertically aligned and spaced along the outer tube **12** (FIGS. **1**, **2**, **7** and **8**).

The gooseneck coupler **10** may also include at least one set screw **64** (FIGS. **1**, **2**, **7** and **8**). For example, there may be any appropriate number of set screws **64**, such as two, three, four, etc. In a non-limiting example, the gooseneck coupler **10** may include a pair of set screws **64**. The set screws **64** may be of any appropriate shape, size, type or configuration. The set screws **64** may be located at any appropriate position on the gooseneck coupler **10**, such as aligned and located partially within the apertures **62** of the outer tube **12** (FIGS. **7** and **8**).

The outer tube **12** may include a mounting nut **66** located around each aperture **62** (FIGS. **7** and **8**). For example, there may be any appropriate number of mounting nuts **66**, such as two, three, four, etc. In a non-limiting example, the gooseneck coupler **10** may include correspondingly similar number of mounting nuts **66** as there are apertures **62**. The mounting nuts **66** may be secured to the outer tube **12** by any appropriate means, such as by welding or the like. The mounting nuts **66** may be of any appropriate shape, size, type or configuration. The mounting nuts **66** may be located at any appropriate position on the outer tube **12**, such as located around each aperture **62**.

Each set screw **64** may utilize a fastener or nut **68** (FIGS. **1**, **2**, **7** and **8**). Any appropriate shape, size, type or configuration of nut **68** may be utilized, such as a lock nut, jam nut or the like. For example, there may be any appropriate number of nuts **68**, such as two, three, four, etc. In a non-limiting example, the gooseneck coupler **10** may include a correspondingly similar number of nuts **68** as there are set screws **64** (FIGS. **1**, **2**, **7** and **8**). The nuts **68** may be located at any appropriate position on the gooseneck coupler **10**, such as aligned with each set screw **64**. The set screw **64** and nut **68** may be threaded into the outer wall of the inner tube **14**

(FIGS. **7** and **8**). The set screws **64** may tighten against the inner tube **14** of the gooseneck coupler **10**, whereby the set screw **64** may lock the outer tube **12** and inner tube **14** together.

The set screws **64** may also function as an over-extension indicator of the outer tube **12**. For example, the gooseneck coupler **10** may include an over-extension indicator via at least two set screws **64**. The pair of set screws **64** may function as a visual indicator to the user that the outer tube **12** of the gooseneck coupler **10** has extended past an intended maximum extension range by utilizing the relative location of the set screws **64** (FIGS. **7** and **8**).

When the inner tube **14** is positioned correctly inside the outer tube **12**, the set screws **64** may relatively evenly tighten against the inner tube **14** to lock the tubes together (FIG. **7**). If the outer tube **12** has been positioned beyond the proper range of full extension (over extended), the set screws **64** will not tighten properly or evenly and the user will know something is not correct. This difference will let the user know something has not been set up correctly. In a non-limiting example, if the outer tube **12** has extended too far away from the base plate **16**, an upper set screw **64** will be able to be threaded further into the center of the outer tube **12** (FIG. **8**). This will cause the user to notice a visual difference between the position of the upper and lower set screws **64** (FIGS. **7** and **8**).

In typical gooseneck couplers that do not utilize a load bearing pin, the set screws **64** may have been placed near the bottom of the inner tube **14**. This may allow the outer tube **12** to be extended beyond its intended extension limit. Placing the top set screw **64** higher on the outer tube **12**, the top set screw **64** may serve as an indicator of over-extension. Lower positioned set screws **64** may not be able to indicate over-extension of the outer tube **12**

Although the embodiments of the present invention have been illustrated in the accompanying drawings and described in the foregoing detailed description, it is to be understood that the present invention is not to be limited to the embodiments disclosed, but that the invention described herein is capable of numerous rearrangements, modifications and substitutions without departing from the scope of the claims hereafter.

The invention claimed is:

1. A gooseneck coupler comprising:

an outer tube telescopically moveable relative to an inner tube along an axis, wherein said inner tube is secured to a base member;

a locking member pivotally secured to said base member, wherein at least one of said locking member and said base member include a first locking pin aperture;

a locking assembly comprising a handle and a locking pin, wherein said locking assembly is located adjacent said inner tube and said locking pin is insertable into said first locking pin aperture;

a support bracket assembly secured to said inner tube, wherein said support bracket assembly includes a stop limiting telescopic movement between said inner and outer tubes and a spacer that laterally spaces said locking pin from said inner tube; and

wherein said stop prevents said outer tube from telescopingly moving along said axis below said stop during a dynamic collapse of said outer tube relative to said inner tube.

2. A gooseneck coupler comprising:

an outer tube telescopically moveable relative to an inner tube along an axis between an operative zone wherein the coupler is configured to support a load of a towed vehicle to an inoperative zone wherein the coupler is not configured to support the load of the towed vehicle , wherein said inner tube is secured to a base member;

at least two apertures located through said outer tube;

at least two set screws locatable through said at least two apertures, wherein said at least two set screws are tightened onto said inner tube generally preventing movement of said outer tube relative to said inner tube along said axis when said outer tube is in said operative zone; and

wherein at least one of said set screws is axially positioned on said outer tube such as to not engage with said inner tube when said outer tube immediately exceeds said operative zone along said axis thereby reaching said inoperative zone and thereby providing an indicator that said outer tube has reached said inoperative zone.

3. The gooseneck coupler of claim **2**, wherein the at least two set screws are substantially evenly tightened against said inner tube when said outer tube is in said operative zone.

4. The gooseneck coupler of claim **2**, wherein said at least two set screws solely prevent relative telescopic movement between said inner and outer tubes when engaged with said inner tube.

5. The gooseneck coupler of claim **4**, wherein said at least two set screws includes an upper set screw and a lower set screw.

6. The gooseneck coupler of claim **5**, wherein said upper set screw is visually threaded further into said outer tube in relation to said lower set screw that is threaded into said inner tube when said outer tube is in said inoperative zone.

7. The gooseneck coupler of claim **2**, wherein said at least two apertures are vertically spaced apart.

8. The gooseneck coupler of claim **2**, further comprising a mounting nut located around each aperture in said outer tube.

9. The gooseneck coupler of claim **2**, further comprising at least one jam nut located on each set screw.

10. A gooseneck coupler for engaging a towed vehicle to a towing vehicle, said gooseneck coupler comprising:

an outer tube telescopically moveable relative to an inner tube along an axis between an operative zone wherein the coupler is configured to support a load of a towed vehicle to an inoperative zone wherein the coupler is not configured to support the load of the towed vehicle, wherein said inner tube is secured to a base member and said outer tube includes at least two apertures located through said outer tube;

a locking member pivotally secured to said base member, wherein said locking member includes a first locking pin aperture;

a locking assembly comprising a handle and a locking pin, wherein said locking assembly is located adjacent said inner tube and said locking pin is insertable into said first locking pin aperture;

a support bracket secured to said inner tube, wherein said support bracket includes a stop and a spacer, and said spacer aligns said locking pin into said first locking pin aperture;

at least two set screws locatable through said at least two apertures, wherein said at least two set screws are tightened onto said inner tube generally preventing telescopic movement of said outer tube relative to said inner tube along said axis when said outer tube is in said operative zone; and

wherein at least one of said at least two set screws is axially positioned on said outer tube such as to not engage with said inner tube when said outer tube immediately exceeds said operative zone along said axis thereby

reaching said inoperative zone and thereby providing-a visual indicator that said outer tube has reached said inoperative zone.

11. The gooseneck coupler of claim **10**, wherein said outer tube rests upon said stop when in a fully retracted position and said handle rests upon said stop when in an unlocked position.

12. The gooseneck coupler of claim **10**, wherein said at least two set screws will not tighten evenly against said inner tube when said outer tube is in said inoperative zone.

13. The gooseneck coupler of claim **1**, wherein said locking member comprises a locking plate.

14. The gooseneck coupler of claim **13**, wherein said base member comprises a base plate.

15. The gooseneck coupler of claim **14**, wherein said stop and said spacer are attached.

16. The gooseneck coupler of claim **1**, wherein an other of said locking member and said base member includes a second locking pin aperture generally alignable with said first locking pin aperture and wherein said locking pin is insertable into said first and second locking pin apertures.

17. The gooseneck coupler of claim **10**, wherein said locking member comprises a locking plate.

18. The gooseneck coupler of claim **17**, wherein said base member comprises a base plate.

19. The gooseneck coupler of claim **18**, wherein said stop and said spacer are attached.

20. The gooseneck coupler of claim **10**, wherein said base member includes a second locking pin aperture generally alignable with said first locking pin aperture and wherein said locking pin is insertable into said first and second locking pin apertures.

21. The gooseneck coupler of claim **1**, wherein said stop extends around a portion of a circumference of said inner tube.

22. The gooseneck coupler of claim **10**, wherein said stop extends around a portion of a circumference of said inner tube.

23. The gooseneck coupler of claim **10**, wherein said stop prevents said outer tube from telescopingly moving along said axis below said stop during a dynamic collapse of said outer tube relative to said inner tube.

24. The gooseneck coupler of claim **4**, wherein no cross pin prevents relative telescopic movement between said inner and outer tubes when engaged with said inner tube.

25. The gooseneck coupler of claim **15**, wherein said support bracket assembly is located generally perpendicularly to said inner tube.

26. The gooseneck coupler of claim **15**, wherein said stop is generally parallel to said base plate.

27. The gooseneck coupler of claim **26**, wherein said outer tube is telescopically moveable relative to said inner tube toward and away from said base plate.

28. The gooseneck coupler of claim **27**, wherein said outer tube rests on said stop when in a fully retracted position.

29. The gooseneck coupler of claim **26**, wherein a portion of said handle may rest upon said stop when said locking pin is in an unlocked position.

30. The gooseneck coupler of claim **29**, wherein said stop maintains said locking pin in said unlocked position against a biasing force of a spring member.

31. The gooseneck coupler of claim **16**, wherein said spacer axially aligns said locking pin with said first and second locking pin apertures.

32. The gooseneck coupler of claim **25**, wherein said stop is generally perpendicular to said spacer.

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